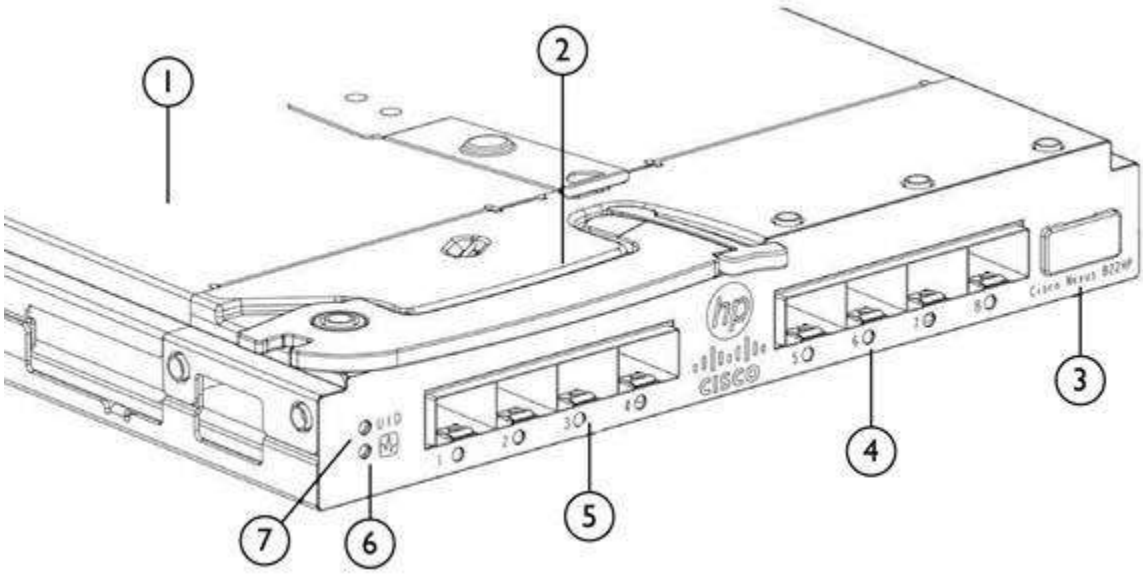
Overview

Cisco Fabric Extender for HP BladeSystem

The Cisco Fabric Extender for HP BladeSystem (Model B22HP) provides an extension of the Cisco Nexus switch fabric to the HP server edge. Logically, it behaves like a remote line card to a parent Cisco Nexus 5000/6000/7000 series switch with the Fabric Extender and the parent Nexus together forming a distributed modular system. The Cisco Fabric Extender for HP BladeSystem forwards traffic to the parent Cisco Nexus Series Switch over eight 10 Gigabit Ethernet uplinks.
Low-cost uplink connections up to 10 meters can be made with copper Twin-ax cable, and longer connections up to 100 meters can use the Fabric Extender Transceiver. Standard 10Gb optics such as SR and LR are also supported.
Downlinks to each server are auto-negotiating and work with all HP Ethernet and CNA modules allowing customers a choice of Ethernet, FCoE or iSCSI connections. Being a seamless extension of the Nexus Switch allows traffic to be switched according to policies established by the parent Nexus Series Switch with a single point of management.



Cisco Fabric Extender for HP BladeSystem (Model B22HP)

1. Switch Module
2. Release Latch
3. Management Port (covered)
4. Port Status LEDs
5. SFP+ 10Gbps Fabric Interfaces
6. Health LED
7. UID LED

Models and Options

Models

HP Cisco B22HP Fabric Extender for BladeSystem c-Class	641146-B21
HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class	657787-B21

NOTE: The Cisco Fabric Extender for HP BladeSystem with 16 FET - (PN 657787-B21), comes packaged with 16 Cisco Fabric Extender Transceivers. These Cisco transceivers can be used to connect the Fabric Extender with a parent Nexus 5000/6000/7000 over optical cable up to 100 meters using OM3 grade fiber.

HP Cisco B22HP Fabric Extender for Integrity	AT135A
HP Cisco B22HP Fabric Extender with 16 FET for Integrity	AT136A

NOTE: The HP Integrity Cisco B22HP Fabric Extender with 16 FET - (PN AT136A), comes packaged with 16 Cisco Fabric Extender Transceivers. These Cisco transceivers can be used to connect the Fabric Extender with a parent Nexus 5000/6000/7000 over optical cable up to 100 meters using OM3 grade fiber.

Standard Features

Performance

- Sixteen 1Gb/10Gb downlinks
  - Each Ethernet downlink supports FibreChannel over Ethernet (FCoE), Datacenter Bridging (DCB), and iSCSI
- Each Ethernet downlink can autonegotiate to 1Gb to support legacy NICs and/or Wake On LAN Eight 10Gb uplinks
  - Each Fabric uplink carries both Ethernet and FibreChannel over Ethernet (FCoE) traffic
  - Fabric uplinks support .5m/1m/3m/5m/7m/10m twinax, Fabric Extender Tranceiver (FET-10G), 10Gbase-SR, and 10Gbase-LR optics
- Up to 48 Fabric Extenders can be managed by a single Nexus 5000/6000/7000 series switch
  - Nexus 5010/5020 supports up to 16 Fabric Extenders
  - Nexus 5548/5596 supports up to 24 Fabric Extenders (L2) and 16 Fabric Extenders (L3)
  - Nexus 6001 supports up to 14 Fabric Extenders
  - Nexus 6001 supports up to 48 Fabric Extenders (L2) and 24 Fabric Extenders (L3)
  - Nexus 7000 supports 32 - 64 Fabric Extenders
- Ports support Ethernet, iSCSI and DCB protocols

Management

- Centralized Management - All configuration & monitoring performed on parent Nexus switch
  - Up to 48 Fabric Extenders can be managed by a single Nexus 5000/6000/7000 series switch
    - Nexus 5010/5020 supports up to 16 Fabric Extenders
    - Nexus 5548/5596 supports up to 24 Fabric Extenders (L2) and 16 Fabric Extenders (L3)
    - Nexus 6001 supports up to 14 Fabric Extenders
    - Nexus 6001 supports up to 48 Fabric Extenders (L2) and 24 Fabric Extenders (L3)
    - Nexus 7000 supports 32 - 64 Fabric Extenders
- Supported by CiscoWorks and Cisco Data Center Network Manager
- Support for SNMP V1, V2, V3
- XML (Netconf) support

Compatibility

HP ProLiant Servers

HP ProLiant BL2x220c G7
HP ProLiant BL280c G6
HP ProLiant BL420c Gen8
HP ProLiant BL460c Gen9
HP ProLiant BL460c Gen8
HP ProLiant BL460c G7
HP ProLiant BL460c G6
HP ProLiant BL465c Gen8
HP ProLiant BL465c G7
HP ProLiant BL465 G6
HP ProLiant BL490c G7
HP ProLiant BL490c G6
HP ProLiant BL495c G6
HP ProLiant BL620c G7
HP ProLiant BL660c Gen8
HP ProLiant BL680c G7
HP ProLiant BL685c G7

Standard Features

	HP ProLiant BL685 G6 **NOTE:** Some servers listed above may be discontinued.	
HP ProLiant Workstation Servers	HP ProLiant WS460 Gen8 HP ProLiant WS460 G6	
HP Integrity Servers	HP Integrity BL860c Server Blade HP Integrity BL860c i2 Server Blade HP Integrity BL860c i4 Server Blade HP Integrity BL870c Server Blade HP Integrity BL870c i2 Server Blade HP Integrity BL870c i4 Server Blade HP Integrity BL890c i2 Server Blade HP Integrity BL890c i4 Server Blade HP Integrity Superdome 2 **NOTE:** The Fabric Extender Modules (PN AT135A and AT136A) are supported only with HP Integrity Superdome 2. **NOTE:** Some servers listed above may be discontinued. **NOTE:** The Integrity Blade servers do not support Open VMS with this particular interconnect.	
HP ProLiant c-Class Server Blade Enclosures	HP BladeSystem c3000 Enclosure HP BladeSystem c7000 Enclosure	
Cisco Network Switches	Cisco Nexus 5010 Cisco Nexus 5020 Cisco Nexus 5548P Cisco Nexus 5548UP Cisco Nexus 5596UP Cisco Nexus 6001UP Cisco Nexus 6004 UP Cisco Neuxs 7004 Cisco Nexus 7009 Cisco Nexus 7010 Cisco Nexus 7018 Cisco Nexus 7700 Cisco Nexus 7706 Cisco Nexus 7710 Cisco Nexus 7718 Cisco Nexus 9396	
Network Cabling	10Gb	Multimode fiber cable; 62.5/125 or 50/125 microns Singlemode fiber cable: 9/125 micron TwinAx Copper

Additional Features

NOTE: Feature support for the Cisco Fabric Extender for HP is mainly derived from the parent switch feature set. Therefore, consult the appropriate Cisco Nexus switch series data sheet, release notes, and configuration guides for a comprehensive list of feature supported. Table 1 lists the hardware capabilities of the Cisco Nexus Fabric Extender for HP BladeSystem. For more information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at: http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html	

Interfaces	• Sixteen internal 1/10 Gigabit Ethernet/FibreChannel over Ethernet ports
	• Eight external 10 Gigabit Ethernet/FCoE Fabric Interfaces
	• External Fabric Interfaces support a wide range of transceivers:
	  ○ Fabric Extender Transceiver
	  ○ 10Gbase-SR optic
	  ○ 10Gbase-LR optic
	• Copper twin-ax cables, .5/1/3/5/7/10m

Layer 2 features	• Layer 2 VLAN trunks • IEEE 802.1Q VLAN encapsulation • Cisco EtherChannel technology on uplinks • PortChannel on server ports • Advanced PortChannel hashing • Jumbo frames on all ports (up to 9216 bytes) • Pause frames (priority flow control [PFC] and IEEE 802.3x) • Private VLANs (promiscuous only on uplinks) • Local multicast replication (8000 entries) • Autonegotiation to 1 Gigabit Ethernet; full duplex on host interfaces
Enhanced Ethernet	• Support for Data Center Bridging (DCB) suite
Quality of service (QoS)	• Layer 2 IEEE 802.1p (class of service [CoS]) • 8 hardware queues per port • Per-port QoS configuration • Local policing (64 policers) • CoS trust • Configurable tail-drop threshold • Egress strict-priority queuing • Egress port-based scheduling: ○ Weighted Round Robin (WRR)
High availability	• Uplink traffic management through Cisco EtherChannel hashing or static port pinning • vPCs for dual-homed active-active connectivity across two Cisco Nexus 5000/6000/7000 Series Switches • vPCs for dual-homed straight-through NIC connectivity across two Cisco Series Fabric Extenders • In-Service Software Upgrade (ISSU)
Security	• Local classification (256 access control list [ACL] entries)
Management	• Fabric extender management using in-band management • UID and Health LEDs • Syslog • Simple Network Management Protocol Versions 1, 2, and 3 (SNMP v1, v2, and v3)

Additional Features

	• Enhanced SNMP MIB support • XML (NETCONF) support • Remote monitoring (RMON) • Cisco Discovery Protocol Versions 1 and 2 • Switched Port Analyzer (SPAN) source on server ports • Power-on self-test (POST) • Cisco Generic Online Diagnostics (GOLD): Ethernet • Comprehensive boot-up diagnostic tests • CiscoWorks • Cisco Data Center Network Manager (DCNM); the Cisco Fabric Extender is managed through the parent Cisco Nexus Series Switch using Cisco DCNM and standard SNMP, XML interfaces, and command-line interface (CLI)
Configuration MIBs	• ENTITY-MIB • IF-MIB • FABRIC-EXTENDER MIB • CISCO-ENTITY-EXT-MIB • CISCO-ENTITY-FRU-CONTROL-MIB • CISCO-ENTITY-SENSOR-MIB • CISCO-ETHERNET-FABRIC-EXTENDER-MIB
Monitoring MIBs	• RMON-MIB
Industry standards	• IEEE 802.1p: CoS prioritization • IEEE 802.1Q: VLAN tagging • IEEE 802.3: Ethernet • IEEE 802.3ae: 10 Gigabit Ethernet • IEEE 802.3ap: 10GBase-KR • SFF 8431 SFP+ support • 10GBASE-SR • 10GBASE-LR • RMON • SFF-8461

Service and Support

Service and Support

NOTE: The Cisco Fabric Extender is an extension of the Nexus fabric, therefore primary support for the Fabric Extender comes from the support package applied to the Nexus switch. Customers who have a Cisco Smartnet contract on the parent Nexus switch should consider Cisco for all first line support calls. For more information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:
http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

HP Technology Services

HP Technology Services offers you consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, boost availability and avoid downtime.

Protect your business beyond warranty with HP Care Pack Services

When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

Recommended Services

Recommended HP Care Pack Services for optimal satisfaction with your HP product

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service

Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

Related Services

Related HP Care Pack Services to enhance your HP product experience

3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service

Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf

HP Proactive Select Service

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf

Insight Remote Support

Delivers secure remote monitoring and support for HP servers and storage, 24x7 at no additional cost. Available as part of HP Warranty, Care Pack and Service Contract offers.

Service and Support

Parts and materials	HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.
Coverage	For BladeSystem enclosures, this service covers the enclosure, power supplies, fans, enclosure devices, and options not designated by HP as requiring separate coverage.
For more information	To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant or www.hp.com/services/bladesystem

Related Options

Connection Options	HP C-series 10GbE Short Range SFP+ Transceiver	AP783A
	HP C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A
	HP C-series SFP+ to SFP+ Active Copper 10.0m Direct Attach Cable	QK702A
	HP BladeSystem c-Class 10GbE SFP+ to SFP+ 0.5m Direct Attach Copper Cable	487649-B21
	HP BladeSystem c-Class 10GbE SFP+ to SFP+ 1m Direct Attach Copper Cable	487652-B21
	HP BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
	HP BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21
	NOTE: HP BladeSystem cables listed above may report an "Unknown Cable" message on the Cisco Nexus switch log depending on NX version. Cable is still usable.	
	NOTE: Additional Cisco SFP+ module types may be procured directly from Cisco for customers wishing to use standard LR optical connections between the Fabric Extender and the Nexus Switch	
Service and Support Offerings (HP Care Pack Services)	**NOTE:** For hardware replacement under warranty or HP Care Pack services, contact Hewlett Packard.	
	NOTE: SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c7000 enclosure Care Packs, SAN/Fabric switches carry separate Care Packs. SAN/Fabric Switch Care Pack service level support should always be uplifted to match existing storage or server service level.	
	Hardware Support Services On-site Service	
	c7000 HP Care Pack Services	
	HP 3 year Next business day c7000 Enclosure Hardware Support	UE477E
	HP 3 year 4 hour 13x5 c7000 Enclosure Hardware Support	UE478E
	HP 3 year 4 hour 24x7 c7000 Enclosure Hardware Support	UE479E
	HP 3 year 6 hour 24x7 Call to Repair c7000 Enclosure Hardware Support	UE480E
	Support Plus 24	
	HP 3 year Support Plus 24 Insight Control Linux Edition BladeSystem c7000 Service	UH321E
	HP 3 year Support Plus 24 Insight Control BladeSystem c7000 Service	UH322E
	HP 3year Support Plus 24 Insight Control Datacenter Edition BladeSystem c7000 Service	UH323E
	Hardware Services On-site Service	
	c3000 HP Care Pack Services	
	HP 3 year Next business day c3000 Enclosure Hardware Support	UH309E
	HP 3 year 4 hour 13x5 c3000 Enclosure Hardware Support	UH310E
	HP 3 year 4 hour 24x7 c3000 Enclosure Hardware Support	UH311E
	HP 3 year 6 hour 24x7 Call to Repair c3000 Enclosure Hardware Support	UH312E
	Support Plus 24	
	HP 3 year Support Plus 24 Insight Control BladeSystem c3000 Service	UF540E

Related Options

Installation & Start-up Services	
HP Startup BladeSystem c7000 Infrastructure Service	UE602E
HP Startup BladeSystem c3000 Infrastructure Service	UF817E
HP Startup BladeSystem c3000 + Operating System Service	UF818E
HP Enhanced Network Installation and Startup Service for HP BladeSystem	UE603E
HP Startup BladeSystem c3000 Enclosed Network Service	UF814E
HP Install c-Class Server Blade Service	UE493E
HP Hardware Install c-Class Enclosure and Server Blade Service	UE494E

NOTE: For more information, customer/resellers can contact http://www.hp.com/services/bladesystemservices

Technical Specifications

Shipping Dimensions	**Length**	13.88 in (352.55mm)
	Width	10.63 in (270.00mm)
	Height	4.75 in (120.65mm)
Shipping Weight		2.0kg (4.4lbs)

Product Specifications Hardware	**Connectors and Cabling**	**Cisco Fabric Extender for HP BladeSystem**
		• Sixteen internal 1/10 Gigabit Ethernet/FibreChannel over Ethernet/iSCSI ports
		• Eight external 10 Gigabit Ethernet/iSCSI/FCoE Fabric Interfaces - SFP+ type connectors
		• External Fabric Interfaces support a wide range of transceivers:
		  ○ Fabric Extender Transceiver
		  ○ 10Gbase-SR optic
		  ○ 10Gbase-LR optic
		• Copper twin-ax cables, .5/1/3/5/7/10m

	Indicators	Total of 10 LEDs on the face place • 8 LEDs for uplink port status • 2 HP specific LEDs to indicate Health and UID status

System Unit	**Dimensions** (L x W x D)	10.5in x 7.5 in x 1.1 in 267.7mm x 92.79mm x 27.94mm	
	Weight	1.27kg (2.8 lbs)	
	Environmental Ranges	**Temperature Range**	
		Operating Temperature	50° to 104° F (10° to 40° C)
		Storage Temperature	-40° to 140° F (-40° to 60° C)
		Operating Relative Humidity (non-condensing)	10 to 95%
		Storage Relative Humidity (non-condensing)	5 to 95%
	Power Specifications	12V @ 6A (72 W) Max (70 watts Typical)	

Safety and Compliance	**Safety Certifications**	CSA certified to UL/CSA 60950-1 CB report and certificate to IEC 60950-1 with all country deviations CE Marking
Electromagnetic Emissions Certifications FCC Part 15 Class A		FCC Part 15 Class A EN 55022 Class A (CISPR22 Class A) VCCI Class A AS/NZS 3548 Class A or AS/NZS CISPR22 Class A KCC Class A BSMI Class A CE Marking

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Summary of Changes

Date	Version History	Action	Description of Change:
12-Dec-2014	From Version 12 to 13	Changed	Cisco Network Switched added: • Cisco Nexus 7706 • Cisco Nexus 7710 • Cisco Nexus 7718
15-Nov-2014	From Version 11 to 12	Changed	Compatibility section was updated
10-Oct-2014	From Version 10 to 11	Added	Cisco Network Switched added: • Cisco Nexus 7700 • Cisco Nexus 9396
13-Aug-2014	From Version 9 to 10	Changed	Connection Options updated
08-Nov-2013	From Version 8 to 9	Changed	Changes made throughout the QuickSpec except for the Technical Specifications section.
26-Apr-2013	From Version 7 to 8	Changed	Standard Features: Updated HP Integrity Servers section of the Compatibility section.
15-Mar-2013	From Version 6 to 7	Added	Compatibility: Added HP ProLiant BL660c Gen8 to the HP ProLiant Severs section.
09-Nov-2012	From Version 5 to 6	Changed	Changes made in Standard Features section.
11-May-2012	From Version 2 to 5	Changed	Change made in the Compatibility section.
27-Mar-2012	From Version 1 to 2	Changed	Changes were within the Standard Features section.

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